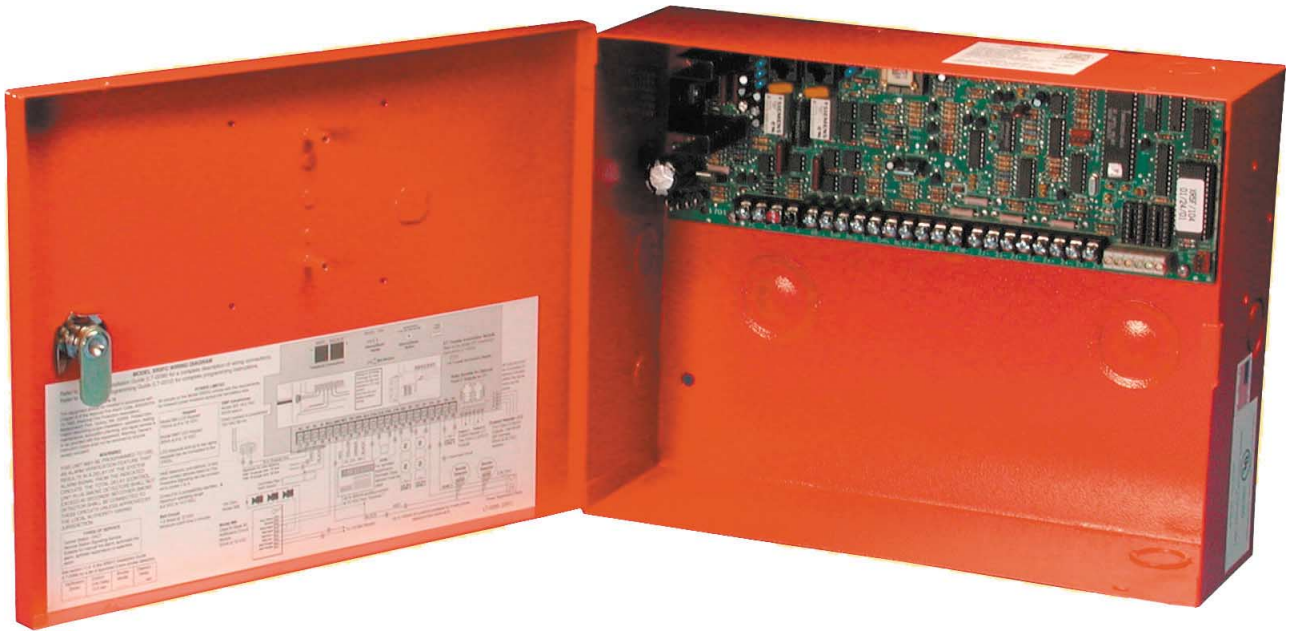
INSTALLATION GUIDE



XR5FC AND XR5SL
COMMERCIAL FIRE PANELS

Digital Monitoring Products

MODEL XR5FC/XR5SL
COMMAND PROCESSOR
INSTALLATION GUIDE

FCC NOTICE

This equipment generates and uses radio frequency energy and, if not installed and used properly in strict accordance with the manufacturer's instructions, may cause interference with radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specification in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the installer is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the computer with respect to the receiver

Move the computer away from the receiver

Plug the computer into a different outlet so that computer and receiver are on different branch circuits

If necessary, the installer should consult the dealer or an experienced radio/television technician for additional suggestions. The installer may find the following booklet, prepared by the Federal Communications Commission, helpful:

"How to identify and Resolve Radio-TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402

Stock No. 004-000-00345-4

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This information is subject to change without notice.

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Revisions to This Document

This section explains the changes that were made to this document during this revision. This section lists the date the change was made, the section number and section heading, and a quick summary of the change.

Date	Section Number and Heading	Quick Explanation of Changes
4/04	Sections 3.2, 3.3, and 6.1	Added battery model 369.
	Sections 3.5 and 6.6	Added keypad models 690F and 790F. Battery Calculations Chart updated to reflect current products, added/revised current draw information.
	4.5 Terminal Wiring Connections	Section added explaining how to run multiple wires under one terminal.
	5.1 Installing the Transformer	Section added explaining proper transformer installation. **Note:** Subsequent numbers in the section were affected.
	5.2 Terminals 1 and 2	Note added explaining Bell Trouble on 866 Modules after power is applied to the panel.
3/02	4.4 Wiring Keypads	Added Wiring Specifications.
	6.6 XR5FC and XR5SL Power Requirements	Updated current draw chart.

Panel Specifications

1.1 Power Supply

Primary Power Input: 16.5 VAC 40 VA (Model 320 wire-in) or 12/24 VDC from Fire Alarm Control Panel (FACP)

Standby Batteries: One or two 12 VDC 7.0 Ah

Auxiliary Output: 500mA at 12 VDC

Bell Output: 1.5 Amps at 12 VDC (XR5FC only)

Smoke Detector Output: 100mA at 12 VDC (XR5FC only)

All circuits inherent power limited except the red battery wire.

1.2 Communication

Built-in SDLC Digital Dialer communication to DMP Model SCS-1 and SCS-1R Receivers.

Built-in 4-2 communication to non-DMP receivers.

Built-in CID communication to non-DMP (Contact ID) receivers.

Can operate as a local system (XR5FC only).

1.3 Panel Zones

One Class A (Style D) zone (terminals 11 to 14).

Four 3.3K Ohm EOL Class B (Style A) powered fire zones with reset capability (terminals 15 to 22).

1.4 Remote Annunciators (Alphanumeric or LED Keypads)

You can connect alpha Security Command keypads and LED keypads to the XR5FC and XR5SL keypad bus. The panels do not support zone expansion on the keypad bus.

1.5 Auxiliary Outputs

Two Form C (SPDT) outputs (Outputs 1 and 2). Each output requires one Model 305 plug-in relay. Each relay is rated for 1 Amp at 30 VDC.

Four open collector annunciator outputs (Outputs 1 to 4). No relay is required. Each output is rated for 50mA at 30 VDC resistive.

1.6 Push-Button Reset

The XR5FC and XR5SL panels each provide a push button mounted on the printed circuit board that allows authorized users to reset latch detectors and silence active alarm bell outputs. See section 16.1.

1.7 Enclosure Specifications

The XR5 panels are shipped in an enclosure with End-of-Line resistors, battery leads, User's Guide (LT-0296), and Programming Sheet (LT-0297).

Size:	12.5" W x 9.5" H x 3.75" D
Weight:	4 lbs
Color:	Red
Construction:	20-gauge cold-rolled steel

Introduction

2.1 Description

The DMP XR5FC and XR5SL Commercial Fire Panels are powerful 12 VDC fire alarm communicators with battery backup that can also be powered from the 12 or 24 VDC auxiliary output of a Fire Alarm Control Panel (FACP). Each panel provides one Class A (Style D) fire zone and four Class B (Style A) powered fire zones with reset capability for 2-wire smoke detectors, relays, or other latching devices.

The XR5 panels can communicate to one or two DMP SCS-1/SCS-1R Receivers using SDLC digital dialer, up to two non-DMP receivers using the 4-2 reporting format, or up to two non-DMP (Contact ID) receivers using the CID reporting format.

2.2 Before you Begin

Before installing the XR5, we recommend you read through the entire contents of this guide. Familiarize yourself with the features of the panel and the key points to remember during the installation. Be sure to read and understand all of the caution statements printed in bold italics.

In addition to this installation guide, you should also read through and familiarize yourself with these other product documents:

- XR5 Programming Guide (LT-0312)
- XR5 User's Guide (LT-0296)
- XR5 Program Information Sheet (LT-0297)

2.3 About this Guide

The information contained in this guide is organized into five sections: Table of Contents, Introduction, and Installation, Compliance, and Wiring Diagrams.

- The Table of Contents at the front of this guide lists all of the headings and subheadings used throughout each section. To the right of each heading is the section number where the information can be found.
- The Introduction section gives you an overview of the various components that go into an XR5 system and diagrams some typical system configurations. This section gives descriptions of the panel, keypads, and accessory modules and provides details on how each of them operate together in the system.
- The Installation section begins with mounting instructions for the enclosure and takes you through the proper way to power up the panel prior to programming.
- The Compliance section describes the various regulations the XR5FC/XR5SL complies with, such as UL.
- The Wiring Diagram section provides schematics of typical system installations.

Caution Notes

Throughout this guide you will see caution notes containing information you need to know when installing the XR5 panels. These cautions are noted with a yield sign as shown below.

Always ground the panel before applying power to any devices: The XR5 panels must be properly grounded before connecting any devices or applying power to the panel. Proper grounding protects against Electrostatic Discharge (ESD) that can damage system components.

Whenever you see a caution note, make sure you completely read and understand its information. Failing to follow the caution note can cause damage to the equipment or improper operation of one or more components in the system.

2.4 How to Use this Guide

To locate information about installing the XR5 panels, first go to the Table of Contents at the front of this guide. Find the subject heading that closely describes the information you need and turn to the section number shown to the right of the heading.

The text that follows the heading has been written to provide as much information about the subject as possible. If you cannot find the information you need under that heading, try scanning through a few of the headings before the text under those that sound similar.

System Components

3.1 Description

A basic XR5 system is made up of the alarm panel with built-in communicator, an enclosure, a 16.5 VAC wire-in transformer, and a 12 VDC 7.0 Ah battery. You can add up to two alphanumeric Security Command keypads and one or more LED Security Command keypads to the panel and also connect control and annunciating devices to the panel's Form C and annunciator outputs. Refer to section 6.6 in this guide when calculating power requirements.

3.2 XR5FC Wiring Diagram

The XR5FC system below shows some of the accessory devices you can connect for use in various applications.

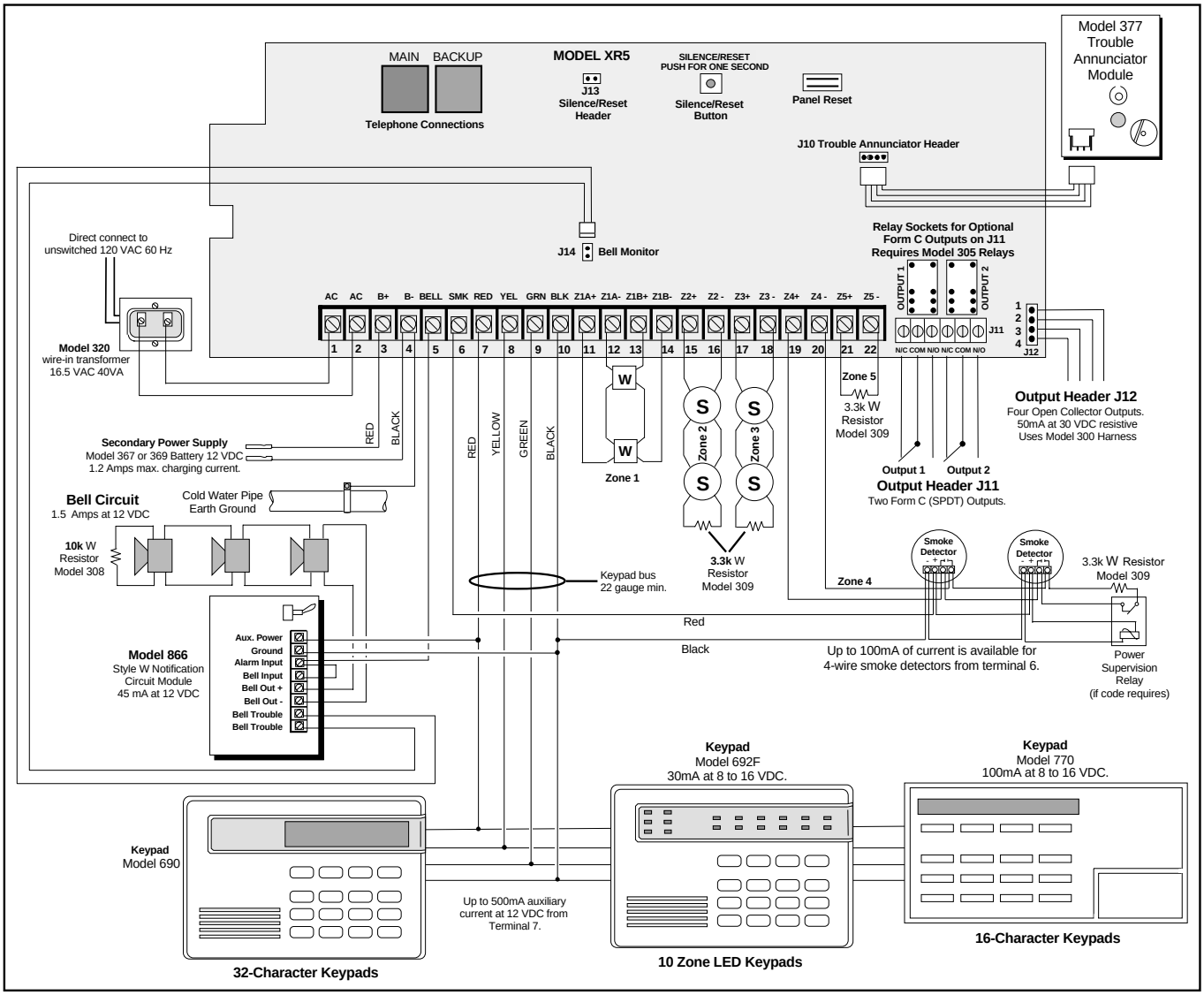


Figure 1: XR5FC Wiring Diagram

3.3 XR5SL Wiring Diagram

The XR5SL system below shows some of the accessory devices you can connect for use in various applications.

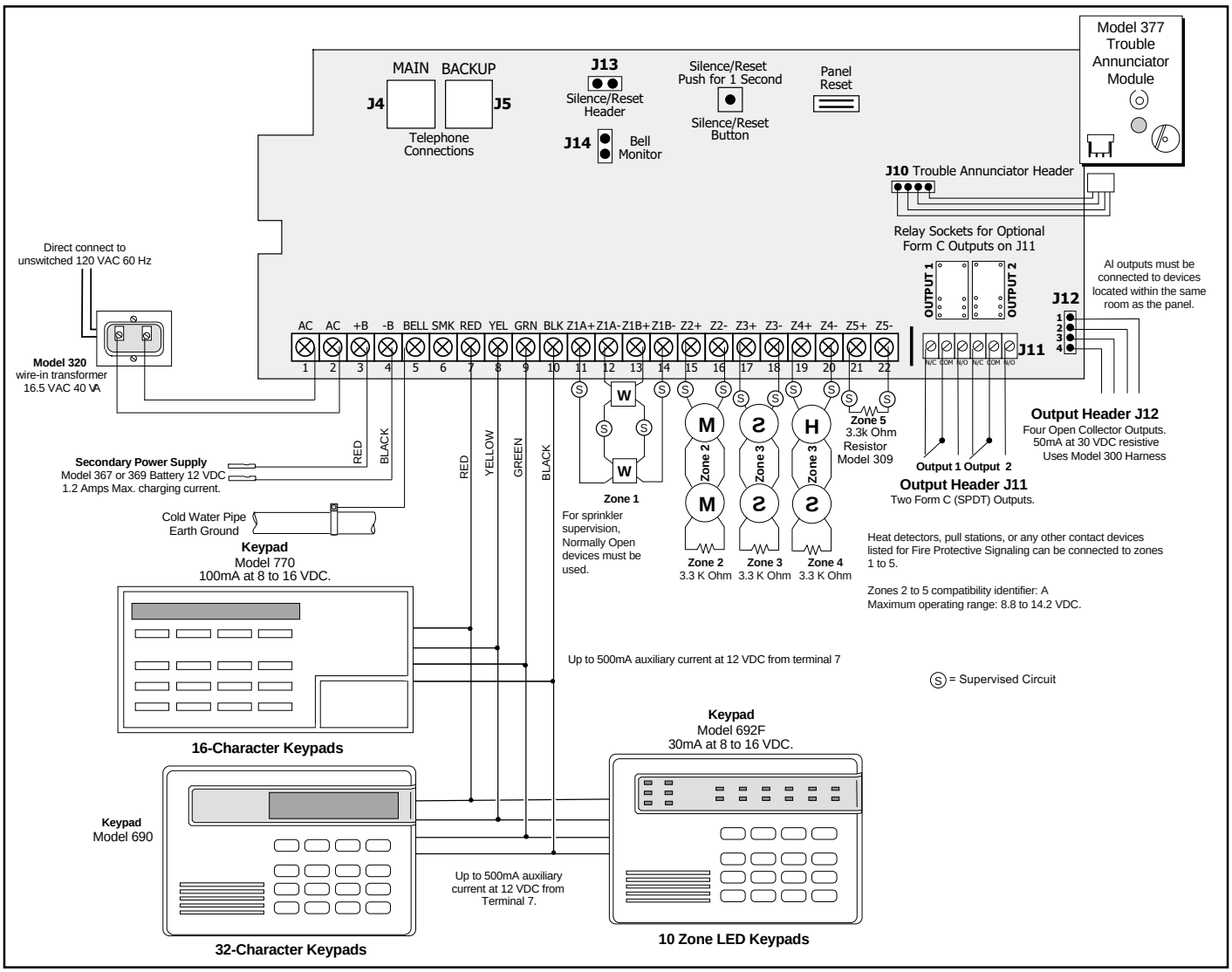

Model 377 Trouble Annunciator Module
MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
J14
Bell Monitor
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J10 Trouble Annunciator Header
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AI outputs must be connected to devices located within the same room as the panel.
Direct connect to unswitched 120 VAC 60 Hz
Model 320 wire-in transformer 16.5 VAC 40 VA
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
N/C COM N/O N/C COM N/O
Secondary Power Supply
Model 367 or 369 Battery 12 VDC
1.2 Amps Max. charging current.
RED
BLACK
RED
YELLOW
GREEN
BLACK
Zone 1
For sprinkler supervision, Normally Open devices must be used.
Zone 2
3.3 K Ohm
Zone 3
3.3 K Ohm
Zone 4
3.3 K Ohm
Zone 5
3.3k Ohm Resistor Model 309
Output Header J12
Four Open Collector Outputs. 50mA at 30 VDC resistive
Uses Model 300 Harness
Output 1 Output 2
Output Header J11
Two Form C (SPDT) Outputs.
Heat detectors, pull stations, or any other contact devices listed for Fire Protective Signaling can be connected to zones 1 to 5.
Zones 2 to 5 compatibility identifier: A
Maximum operating range: 8.8 to 14.2 VDC.
Cold Water Pipe Earth Ground
Keypad
Model 770
100mA at 8 to 16 VDC.
Up to 500mA auxiliary current at 12 VDC from terminal 7
S = Supervised Circuit
16-Character Keypads
Keypad
Model 692F
30mA at 8 to 16 VDC.
Keypad
Model 690
Up to 500mA auxiliary current at 12 VDC from Terminal 7.
32-Character Keypads
10 Zone LED Keypads

Figure 2: XR5SL Wiring Diagram

3.4 Lightning Protection

Metal Oxide Varistors and Transient Voltage Suppressors on the panel help protect against voltage surges on input and output circuits of the XR5 panels. Additional surge protection is available by installing the DMP 370 or 370RJ Lightning Suppressors.

3.5 Security Command® Keypads

You can connect the Models 690, 690F, 692F, 770, 771, 790, 790F, 791, or 793 Security Command keypads to the 4-wire keypad bus provided by the panel on terminals 7, 8, 9, and 10.

Do not use shielded wire for the keypad bus.

Installation

4.1 Mounting the Enclosure

The metal enclosure for the XR5FC and XR5SL panels must be mounted in a secure, dry place to protect the panels from damage due to tampering or the elements. It is not necessary to remove the XR5FC or XR5SL PC board when installing the enclosure.

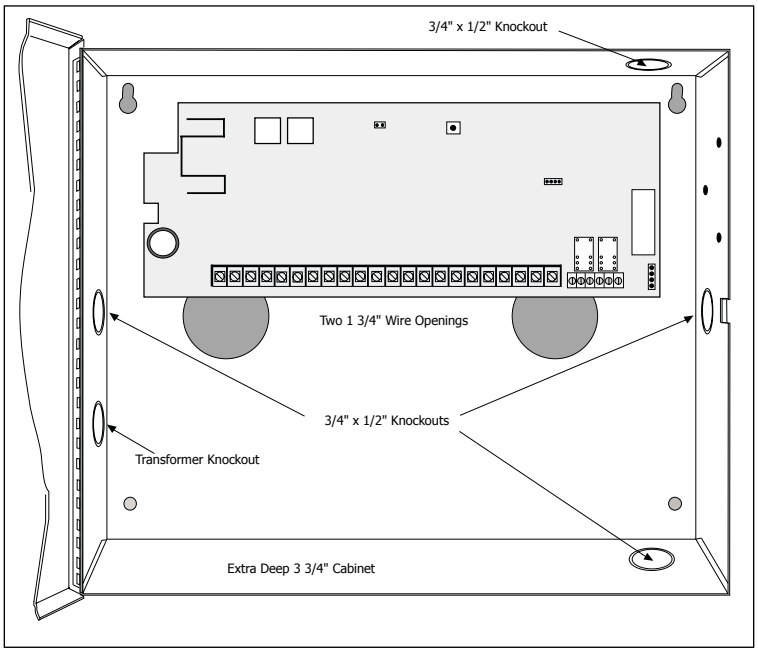


Figure 3: Mounting the Enclosure

4.2 Model 377 Trouble Annunciator Module

The 377 Module is installed on the enclosure door and connects to the panel through a 4-wire harness supplied with the module. See Figure 4.

377 Module Operation

The 377 Trouble Annunciator Module provides visual and audible annunciation of System Okay, communication trouble, and panel processor failure. The module contains a Green LED for System Okay, a Yellow LED for Trouble, an electronic sounder, and a Silence switch.

System Okay

When both phone lines are normal and the panel processor is operating, only the Green LED on the 377 Module is on. This LED goes off during a Sensor Reset.

Communication Trouble

If either phone line connected to the panel is in a bad condition, or if the panel has made TEN failed attempts to send a report to the central station receiver, the 377 Module emits a steady audible alert and turns on the Yellow LED. The Silence switch can be used to turn off the sounder only.

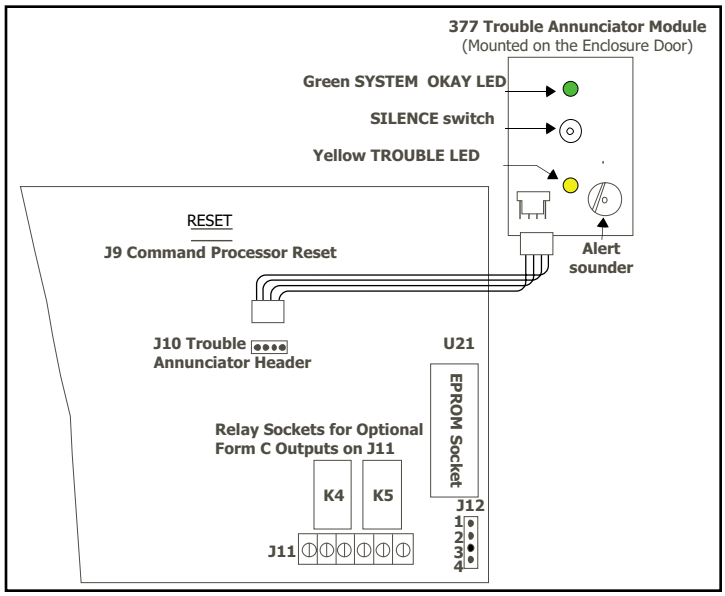


Figure 4: 377 Module Wiring

Panel Processor Failure

During a processor failure on the panel, or a remote programming session, the 377 Module emits a steady audible alert and turns on the Yellow LED. The Silence switch will not turn off the sounder or Yellow LED during these conditions.

4.3 Mounting Keypads

Security Command keypads have removable covers that allow you to easily mount the base to a wall or other flat surface. After installing the keypad mounting anchors and bringing the keypad wiring from the panel through the wall, mount the base and connect the keypad wire harness leads to the keypad wiring. Next, attach the keypad wire harness connector to the pin connector on the keypad circuit board and install the cover.

For mounting keypads on masonry walls, or for applications where conduit is required, use an appropriate DMP keypad conduit backbox.

4.4 Wiring Specifications

1. You can install individual keypads on wire runs of up to 500 feet using 22 gauge wire or up to 1,000 feet using 18 gauge wire. To increase the wire length or add additional devices, a power supply is required.
2. Maximum distance for any one keypad bus circuit (length of wire) is 2,500 feet regardless of the gauge of wire. This distance can be in the form of one long wire run or multiple branches with all wiring totaling no more than 2,500 feet.
3. Maximum number of devices per 2,500 feet circuit is 40. (Refer to the section 9.1 for the specific number of supervised keypads that are allowed.)
4. Maximum voltage drop between the panel (or auxiliary power supply) and any device is 2.0 VDC. If the voltage at any device is less than the required level, an auxiliary power supply should be added at the end of the circuit.

Refer to the wiring diagram in section 3.2 in this guide for additional wiring information. For more information, refer to the 710 Module Installation Sheet (LT-0310). Also see the Trouble-Free LX-Bus/Keypad Bus Wiring Application Note (LT-2031).

Note: Do not use shielded wire for the keypad bus.

4.5 Terminal Wiring Connections

In all applications where more than one wire is under a terminal, the wire must be cut and not looped around the screw terminal. See Figure 5.

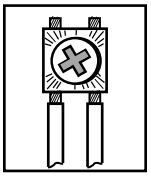


Figure 5: Wiring Connections

Primary Power Supply

5.1 Installing the Transformer

All electrical wiring must be completed by a trained electrician! The transformer requires an unswitched 120 VAC 60 Hz electrical outlet with at least 350mA of available current. Never share the transformer output with any other equipment. The 120 VAC circuit is not power limited.

To mount the Model 320 Transformer to a single-gang box adjacent to the XR5 enclosure, follow the steps below.

1. Remove the lower knockout from the XR5 enclosure.
2. Attach a single-gang box adjacent to the XR5 enclosure as shown in Figure 6.
3. After the single-gang box is secured, attach the transformer to the junction box, using the bottom box's bottom knockout. The screw on the transformer should extend into the single-gang box. Refer to Figure 6.
4. Tighten the screw to secure the transformer to the junction box .
5. An electrician must then connect the black and white leads on the transformer to an unswitched 120 VAC 60 Hz electrical outlet with at least 350mA of available current.

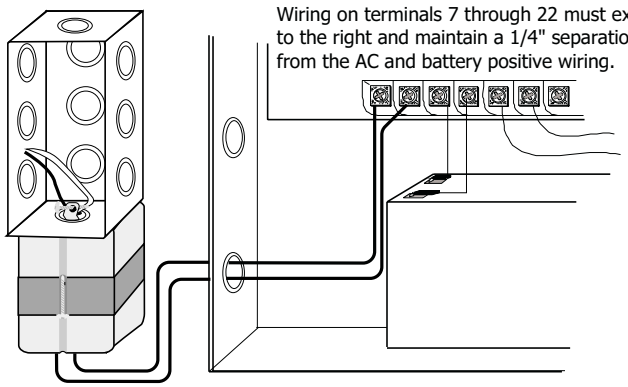

Wiring on terminals 7 through 22 must exit to the right and maintain a 1/4" separation from the AC and battery positive wiring.

Figure 6: Transformer Installation

6. Connect the wires from the bottom (the side opposite the attaching screw) two terminals on the transformer to terminals 1 and 2 on the panel. Use no more than 70 ft. of 16-gauge wire or 40 ft. of 18-gauge wire between the transformer and the XR5FC or XR5SL panel. Refer to Figure 6.

5.2 Terminals 1 and 2

AC Transformer Input

The transformer provides up to 500mA of auxiliary current for the XR5FC and XR5SL panels. The total current available is limited by the total battery standby requirements of the installation. See section 6.6 for standby battery calculations.

Note: After power is applied to the XR5 panel, any 866 Notification Modules connected to the panel will show Bell Trouble for 20 seconds.

DC Power Input to AC Input

When powering the XR5FC/SL panel from the 12 VDC output of an FACP, connect the positive wire to the positive battery terminal of the XR5 and the negative wire to the negative battery terminal of the XR5.

When powering the panel from the DC output of a 24 Volt Fire Alarm Control Panel (FACP), connect the positive wire from the FACP to terminal 1 and the negative wire to terminal 2.

Do not use battery backup with 12 or 24 VDC input: Do not connect any batteries to the XR5FC or XR5SL panels when using the 12 or 24 VDC output from a FACP. The XR5FC and XR5SL panels use the backup battery capability of the FACP for their standby requirements.

Features disabled when using 24 VDC power input: When powering the XR5FC or XR5SL panel from the 24 VDC output of a FACP, the following operational features are disabled:

- Bell Output on the XR5FC
- AC test (XR5FC and XR5SL)
- Battery test (XR5FC and XR5SL)

Always ground the panel before applying power to any devices: The XR5FC and XR5SL panels must be properly grounded before connecting any devices or applying power to the panels. Proper grounding protects against Electrostatic Discharge (ESD) that can damage system components. See Earth ground, section 6.2.

Secondary Power Supply

6.1 Battery Terminals 3 and 4

Connect the black battery lead to terminal 4 on the panel and then to the negative terminal of the battery. The negative terminal connects to the enclosure ground internally through the XR5FC and XR5SL panel circuit board. Connect the red battery lead to terminal 3 on the panel and then to the positive terminal of the battery. Observe polarity when connecting the battery.

The XR5FC and XR5SL panels are capable of recharging two 7.0 Ah batteries (14 Amp/hours) within 24 hours.

Do not use battery backup with 24 VDC input: Do not connect batteries to the XR5FC and XR5SL panels when powering the panels with 20 to 28.2 VDC voltage from a Fire Alarm Control Panel (FACP). The XR5FC and XR5SL panels use the backup battery capability of the FACP for their standby requirements.

Use sealed lead-acid batteries only: Use the DMP Model 367, 12 VDC 7.7 Ah or Model 369 7.0 Ah sealed lead-acid rechargeable battery. Batteries supplied by DMP or manufactured by Eagle Picher or Yuasa have been tested to ensure proper charging with DMP products.

DO NOT USE GEL CELL BATTERIES WITH THE XR5FC AND XR5SL.

6.2 Earth Ground

Terminal 4 of the XR5FC and XR5SL panels must be connected to earth ground using 14 gauge or larger wire to provide proper transient suppression. DMP recommends connecting to a metal cold water pipe or ground rod only. Do not connect to electrical conduit or a telephone company ground.

6.3 Replacement Period

DMP recommends replacing the battery every 3 to 5 years under normal use.

6.4 Discharge/Recharge

The battery charging circuit on the XR5FC and XR5SL panels float charge at 13.9 VDC at a maximum current of 1.2 Amps using the Model 320 Transformer. The total current available is reduced by the combined auxiliary current draw from terminals 6, 7, 15, 17, 19, and 21. The various battery voltage levels are listed below:

Battery Trouble: Below 11.9 VDC

Battery Restored: Above 12.6 VDC

6.5 Battery Supervision

The XR5FC and XR5SL panels load test the battery once every three minutes when AC power is present on terminal 1 and 2. The test lasts for five seconds. If, during the test, the battery voltage falls below 11.9 VDC a low battery is indicated. The test is then repeated every two minutes until the battery charges above 12.6 VDC, the battery restored voltage.

If the low battery does not recharge and is replaced with a fully charged battery, the charged battery will not be detected until the next two minute test is done.

If AC power fails during normal system operation, a low battery is indicated any time the battery voltage falls below 11.9 VDC.

6.6 XR5FC and XR5SL Power Requirements

During AC power failure, the XR5FC and XR5SL panels, and all auxiliary devices connected to the panels, draw their power from the battery. All devices must be taken into consideration when calculating the battery standby capacity. Below is a list of the power requirements of the XR5FC and XR5SL panels. Add the additional current draw of Security Command keypads, smoke detectors, and any other auxiliary devices used in the system for the total current required.

XR5FC and XR5SL Standby Battery Calculations

Standby Battery Power Calculations	Standby Current			Alarm Current		
XR5FC/XR5SL Panel		50mA	_____mA		50mA	_____mA
Relay Outputs 1-2 (ON)	Qty _____x	30mA	_____	Qty _____x	30mA	_____
Active Zone 1		3.3mA	_____		3.3mA	_____
Active Zones 2-5	Qty _____x	4mA	_____	Qty _____x	4mA	_____
521B/BXT Smoke Detectors	Qty _____x	0.070mA	_____	Qty _____x	0.070mA	_____
SLR-835B Smoke Detectors	Qty _____x	0.070mA	_____	Qty _____x	0.070mA	_____
Other 2-Wire Smoke Detectors	Qty _____x	.1mA	_____	Qty _____x	.1mA	_____
			_____			_____
Bell Output (1500mA Max.)						_____mA
690/690F Security Command Keypad	Qty _____x	77mA	_____	Qty _____x	84mA	_____
Annunciator (ON)					20mA	_____
692F Fire Security Command Keypad	Qty _____x	30mA	_____	Qty _____x	70mA	_____
790/790F Security Command Keypad	Qty _____x	77mA	_____	Qty _____x	84mA	_____
Active Zones (EOL Installed)		1.6mA	_____	Qty _____x	*2mA	_____
Annunciator (ON)					20mA	_____
791 Easy Entry Keypad	Qty _____x	100mA	_____	Qty _____x	100mA	_____
Active Zones (EOL Installed)		1.6mA	_____	Qty _____x	*2mA	_____
Annunciator (ON)					20mA	_____
793 Easy Entry Keypad	Qty _____x	92mA	_____	Qty _____x	120mA	_____
Active Zones (EOL Installed)		1.6mA	_____	Qty _____x	*2mA	_____
Annunciator (ON)					20mA	_____
770, 771 Security Command Keypads	Qty _____x	100mA	_____	Qty _____x	100mA	_____
Active Zones (EOL Installed)		1.6mA	_____	Qty _____x	*2mA	_____
Annunciator (ON)					20mA	_____
377 Trouble Annunciator Module		17mA	_____		17mA	_____
Aux. Powered Devices on Terminals 7 and 6 Other than Keypads			_____mA			_____mA

	Total Standby	_____mA	Total Alarm _____mA
Total Standby_____mA x number of Standby Hours needed	_____ =	_____mA-hours	
	Total Alarm	_____mA	_____mA-hours
	+		_____mA-hours
	Total		X .0001
			= _____Amp-hrs Required

*Based on 10% of active zones in alarm

Bell Output

7.1 Terminal 5 (XR5FC Only)

Terminal 5 supplies 12 VDC Bell Output to power alarm bells or horns. The output is rated for a maximum of 1.5 Amps. This output can be steady or pulsed depending upon the Bell Action specified in Output Options programming. Terminal 10 is the ground reference for terminal 5.

4-Wire Smoke Detector Power

8.1 Terminal 6 (XR5FC Only)

Terminal 6 provides up to 100mA at 12 VDC to power 4-wire smoke detectors or other auxiliary powered devices. This output can be turned off by the user for 5 seconds using the Sensor Reset User Menu option. Terminal 10 is the ground reference for terminal 6.

Keypad Bus

9.1 Description

Terminals 7, 8, 9, and 10 of the XR5FC and XR5SL panels provide the keypad bus to which you can connect an unlimited number of 692F LED keypads, two alphanumeric Security Command keypads, and other auxiliary devices.

9.2 Terminal 7 - RED

Terminal 7 provides 12 VDC keypad power for Security Command keypads. You can also connect 12 VDC auxiliary devices to terminal 7. The ground reference for terminal 7 is terminal 10. The maximum output is rated at 500mA on the XR5FC and XR5SL panels. All auxiliary devices totalled together must not exceed the panel's maximum current rating.

9.3 Terminal 8 - YELLOW

Data receive from devices.

9.4 Terminal 9 - GREEN

Data transmit to devices.

9.5 Terminal 10 - BLACK

Terminal 10 is the ground reference for keypads and any auxiliary devices powered by terminal 7.

Note: Do not use shielded wire when wiring keypads or other devices.

Class A (Style D) Fire Zone

10.1 Description

Terminals 11 to 14 are the panel's Class A (Style D) fire zone. This zone is suitable for connecting waterflow devices, heat detectors, and other non-powered fire devices. For programming purposes, this is zone number 1. The zone is rated for 1.66mA at 5.0 VDC.

The zone configuration on terminals 11 to 14 are described below.

Terminal	Function	Terminal	Function
11	Zone 1 voltage sensing	12	Negative for terminal 11
13	Zone 1 voltage sensing	14	Negative for terminal 13

The voltage sensing terminal measures the voltage flowing through the circuit to the zone's negative terminal. Dry contact sensing devices can be used only in parallel (normally-open) with zone 1. There are no End-of-Line resistors on a Class A (Style D) zone.

Class B (Style A) Fire Zones

11.1 Description

Terminals 15 to 22 are the Class B (Style A) fire zones on the XR5FC and XR5SL panels. These zones are suitable for connecting powered or non-powered fire devices. For programming purposes, these zones are designated 2 to 5. The zone configurations on terminals 15 to 22 are described below:

Terminal	Function	Terminal	Function
15	Zone 2 voltage sensing	16	Zone 2 negative
17	Zone 3 voltage sensing	18	Zone 3 negative
19	Zone 4 voltage sensing	20	Zone 4 negative
21	Zone 5 voltage sensing	22	Zone 5 negative

11.2 Operational Parameters

The Class B (Style A) zones on the XR5FC and XR5SL panels can detect three conditions: open, normal, and short. Each zone terminates with a Model 309, 3.3k Ohm EOL resistor (provided with the panel) and is rated for 53mA at 12 VDC.

The UL compatibility identifier for use with 2-wire smoke detectors is: A.

11.3 Zone Response Time

A condition must be present on the zone for at least 500 milliseconds before it is detected by XR5FC and XR5SL panels. Only use detection devices that are rated for use with this delay.

11.4 Compatible 2-Wire Smoke Detectors

The table below lists detectors meeting the compatibility requirements for use with the Class B (Style A) zones on the XR5FC and XR5SL fire panels. Do not mix detectors from different manufacturers on the same zone.

Manufacturer	Model	Detector ID	Base	Base ID	# of Detectors
Detection Systems	DS250	B	MB2W	A	10
Detection Systems	DS250TH, DS250HD	B	MB2W, MB2WL	A	10
Detection Systems	DS282, DS282TH	B			10
Hochiki	SLK-12	HD-4	HSB-12-1, HSB-12-1N	HB-80	20
DMP/Hochiki	SLK-835, SLK-835H	HD-5	HSB-200, HSB-200N	HB-55	7
DMP/Hochiki	SLR-835	HD-3	NS6-100	HB-55	7
DMP/Hochiki	SLR-835B	HD-6			7
Sentrol/ESL	429AT, 521B, 521BXT	S09A			12
System Sensor	1100, 1400	STD			10
System Sensor	1151	STD	B110LP		10
System Sensor	1451, 2451TH	STD	B401, B401B		10
System Sensor	1451DH	STD	DH400		10
System Sensor	2100, 2100T	STD			10
System Sensor	2400, 2400AT, 2400AIT, 2400TH	STD			10
System Sensor	2451	STD	B401, B401B, DH400		10

Form C Relay Outputs

12.1 Description

The XR5FC and XR5SL panels can provide two auxiliary Form C (SPDT) relays when equipped with DMP Model 305 Plug-in Relays in sockets OUTPUT 1 and OUTPUT 2. Each relay is rated for 1 Amp at 30 VDC.

Each output provides one Common, one Normally Open, and one Normally Closed terminal. Field wiring for the Form C relays connects to the 6-position terminal strip on the lower right corner of the XR5FC and XR5SL boards.

The Form C relays can be operated by any of the functions listed below:

1) Activation by a zone condition
2) Communication Failure
3) Fire alarm or Fire trouble

Annunciator Outputs

13.1 Description

The XR5FC and XR5SL panels provide four open collector annunciator outputs that can be programmed to indicate the activity of the panel's zones or conditions occurring on the system. Open collector outputs do not provide a voltage but instead switch to ground voltage from another source. Each annunciator output is rated for 50mA at 30 VDC resistive.

Form C and Annunciator outputs operate together: The Form C outputs 1 and 2 are internally connected to the Annunciator outputs 1 and 2. Any options assigned to Output 1 or 2 in the panel's Output Options programming applies to both outputs. While the Form C outputs each require a Model 305 Plug-in Relay, the annunciator outputs will work without the relays.

The Annunciator outputs can respond to any of the conditions listed below:

1) Activation by zone condition
2) Communication failure
3) Fire Alarm or Fire Trouble

13.2 Harness Wiring

The Annunciator outputs are accessible by installing the DMP 300 Harness on the 4-pin header labeled J12. The output locations are shown below:

Output	Color	Wire
1	Red	1
2	Yellow	2
3	Green	3
4	Black	4

Devices connected to the outputs must be located within the same room as the XR5FC and XR5SL panels.

Telephone RJ Connector

14.1 Description

Connect the panel to the public telephone network by installing DMP 356 RJ Cables between the panel's J4 (MAIN) and J5 (BACKUP) connectors, and the RJ31X or RJ38X phone jacks on the 356 cable.

14.2 FCC Registration

The XR5FC and XR5SL panels comply with FCC part 68 and are registered with the FCC.

Registration number: CCK USA - 18660 - AL - R

Ringer Equivalence: 1.1B

14.3 Notification

Registered terminal equipment must not be repaired by the user. In case of trouble, the device must be immediately unplugged from the telephone jack. The factory warranty provides for repairs. Registered terminal equipment may not be used on party lines or in connection with coin telephones. Notification must be given to the telephone company of:

a. The particular line(s) the service is connected to
b. The FCC registration number
c. The ringer equivalence
d. The make, model, and serial number of the device

Reset Jumper J9

15.1 Description

There is a reset jumper located at the top right of the panel's circuit board labeled RESET. Momentarily shorting the metal wires of the jumper with a screwdriver allows you to reset the microprocessor of the XR5FC and XR5SL panels, allowing you to enter the internal Programmer.

You can reset the panel while the system is operational (for example, during a service call) without powering down the system.

After resetting the panel for programming, you must begin within 30 minutes. If you wait longer than 30 minutes, you will have to reset the panel again.

Silence/Reset Button

16.1 Silence/Reset Button

The XR5FC and XR5SL panels each contain a mechanical push button located on the top center of the printed circuit board that allows authorized users to silence alarm bells or sirens and reset latched detection devices.

After pressing the button, the panel silences the Bell output (XR5FC terminal 5) and momentarily drops power to the auxiliary output (XR5FC terminal 6), the 377 Trouble Annunciator Module, and zones 2 to 5 (both panels). Additionally, any Fire or Supervisory event displays at the keypads are also cleared. A 2-pin reset header (J13) is also provided for use with keyswitches.

16.2 Bell Circuit Monitor

The XR5FC panel contains a bell monitor input (J14) that can be connected to the trouble contacts of the Model 865 or 866 Notification Circuit Module. When the 2-pin header is shorted via the notification module, the Bell Circuit Monitor is in a restored condition. When the trouble contacts open, a bell circuit trouble is indicated. The XR5FC is shipped from the factory with a shorting clip on the 2-pin header to indicate a restored condition. The DMP Model 306 harness is used to connect the J14 Bell Circuit Monitor to the trouble contacts of the 865 or 866 Notification Circuit Module.

Dual Phone Line Connectors

17.1 Description

The XR5FC and XR5SL panels contain built-in dual phone line capability that allows the panel to monitor two phone lines, indicate a phone line failure, and switch to the alternate phone line to communicate alarm and system reports to a central station.

Before sending a report, the panel verifies whether the main phone line is working. If not, the panel sends the report over the backup phone line. An integrated phone line monitor circuit continually tests the phone lines and indicates a trouble condition on the line after 90 seconds. If the phone line restores and is good for 90 seconds, the panel ends the phone line trouble indication.

Universal UL and NFPA Fire Alarm Specifications

18.1 Introduction

The programming and installation specifications contained in this section must be completed when installing the XR5FC and XR5SL panels in accordance with any of the UL or NFPA fire standards. Additional specifications may be required by a particular standard.

18.2 Wiring

All wiring must be in accordance with NEC, ANSI/NFPA 70.

18.3 Police Station Phone Number

The digital dialer telephone number programmed for communication must not be a police station phone number, unless that phone number is specifically provided for that purpose.

18.4 System maintenance

Proper installation and regular maintenance by the installing alarm company and frequent testing by the end user is essential to ensure continuous satisfactory operation of any alarm system. Offering a maintenance program and acquainting the user with the correct procedure for use and testing of the system is also the responsibility of the installing alarm company.

18.5 Audible alarm (XR5FC only)

Fire Type zones should be programmed to activate an audible alarm. The Bell Action for Fire Type zones should not be programmed as "N". See section 6.3A in the XR5FC and XR5SL Programming Guide (LT-0312).

18.6 UL Listed Receivers

UL has verified operation with the Sur-Gard SG-HLR2-DG, FBII CP220PB, Osborne-Hoffman Quick-Alert, and Radionics D6500 receivers.

UL 864 and NFPA 72 Specifications

Control Units for Fire Protective Signaling Systems

19.1 Power Fail delay

The Power Fail Delay option must be set to 6 hours. See section 5.4 of the Programming Guide (LT-0312).

19.2 Central Station Signaling Systems

Two phone lines must be used. The two phone lines cannot be ground start or party lines. See section 3.3 of the XR5FC and XR5SL Programming Guide (LT-0312).

Two different phone numbers must be programmed for digital communication. See sections 3.12 and 3.20 of the XR5FC and XR5SL Programming Guide (LT-0312).

19.3 Local Protective Signaling Systems

The DMP Model 865 or 866 Notification Circuit Module must be used on the bell circuit for detection of shorts and grounds. See sections 21.1 to 21.3 of this guide.

19.4 Remote Station Protective Signaling Systems

You must provide 60 hours of standby battery. Up to two 12 VDC, 7.0 Ah batteries may be used. See section 6.6 for standby battery calculations. Two Radionics Model D127 Reversing Relay Modules may be used to provide two reversing polarity telephone connections instead of dual phone lines. See section 21.4 and the D127 Installation Instruction sheet for wiring details.

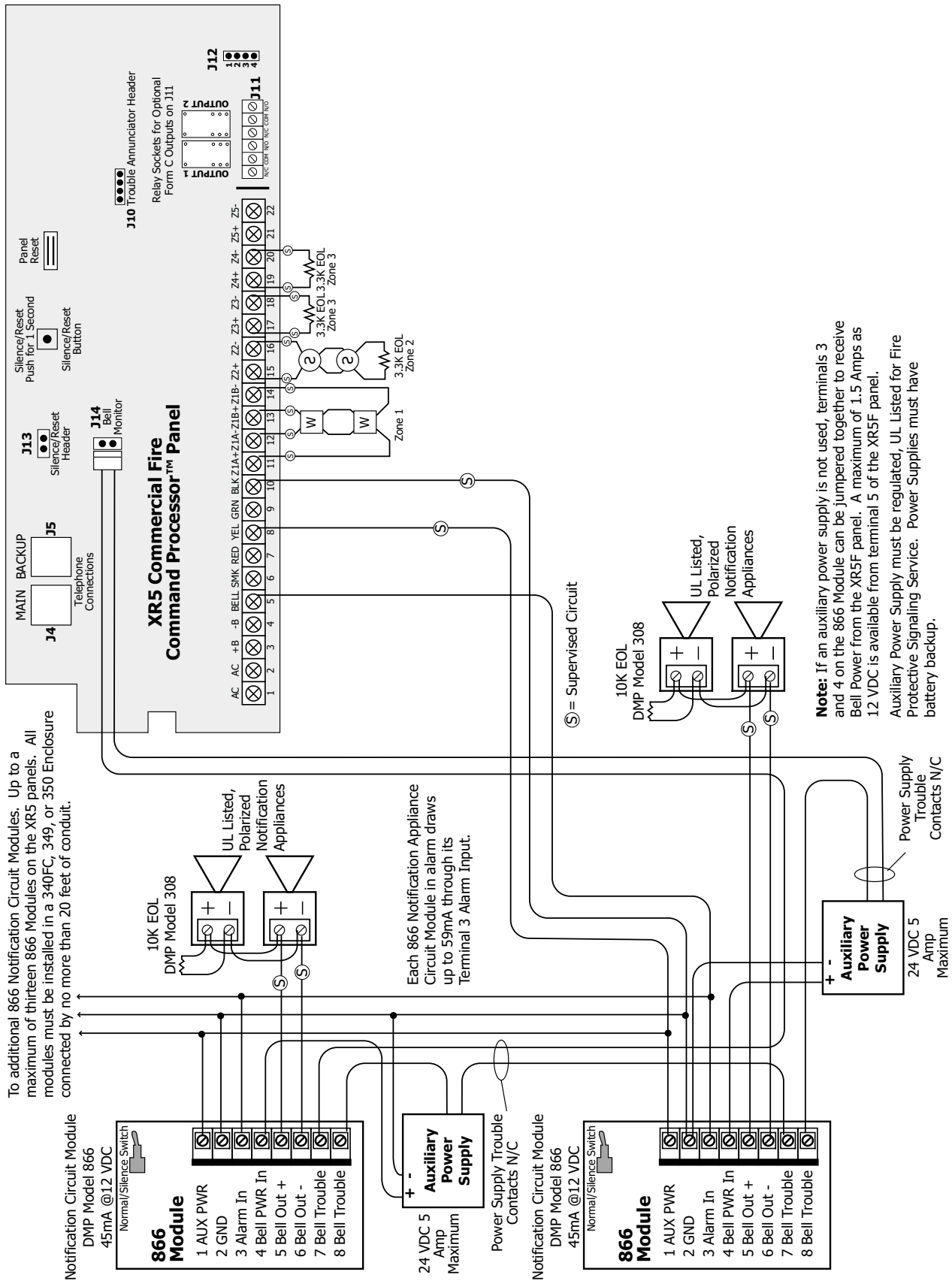
California State Fire Marshal Specifications

20.1 Bell Output Definition

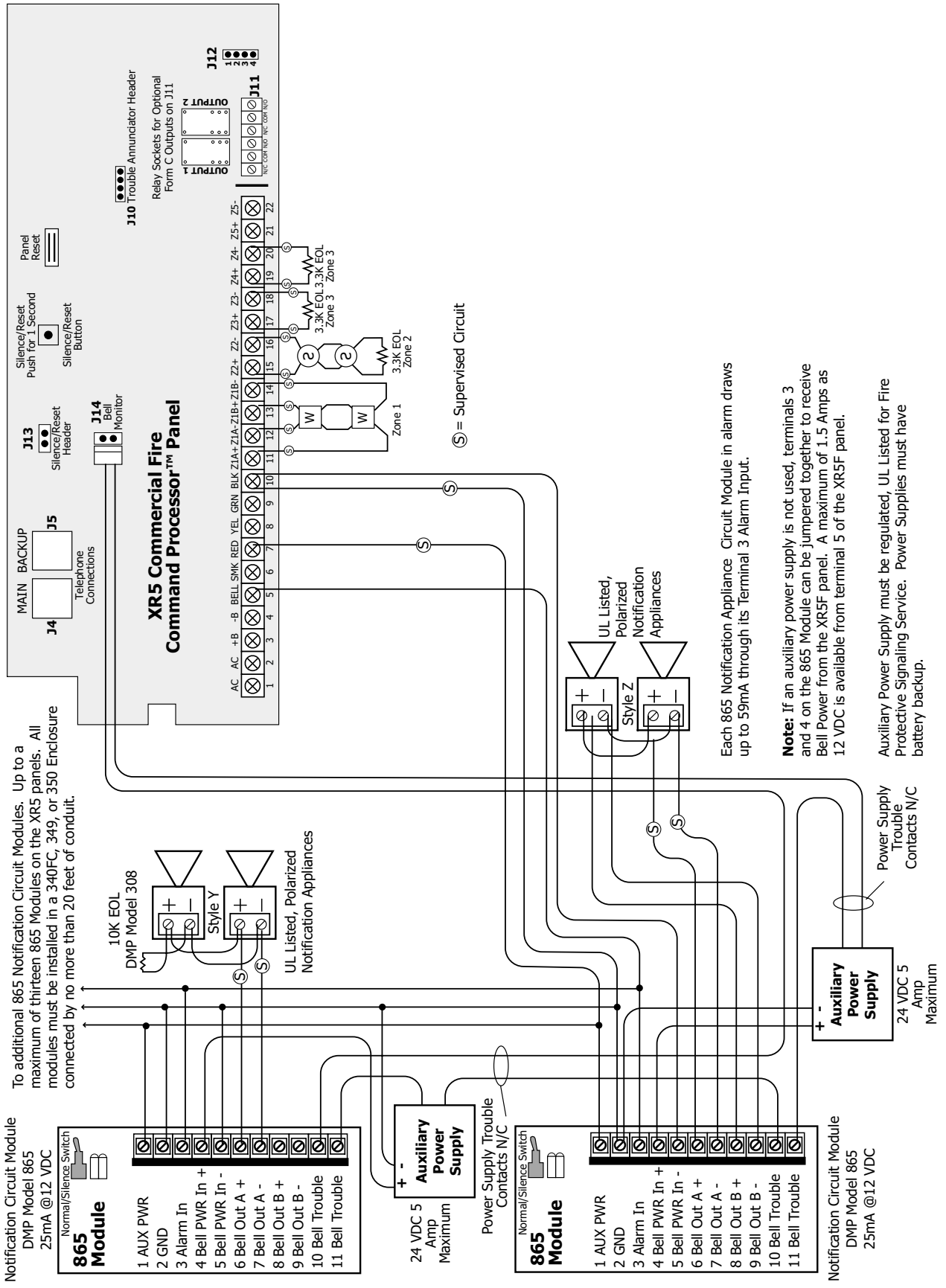
The bell output of the Model XR5FC must be programmed to operate temporal on fire alarms. See section 6.3A of the XR5FC and XR5SL Programming Guide (LT-0312).

Wiring Diagrams

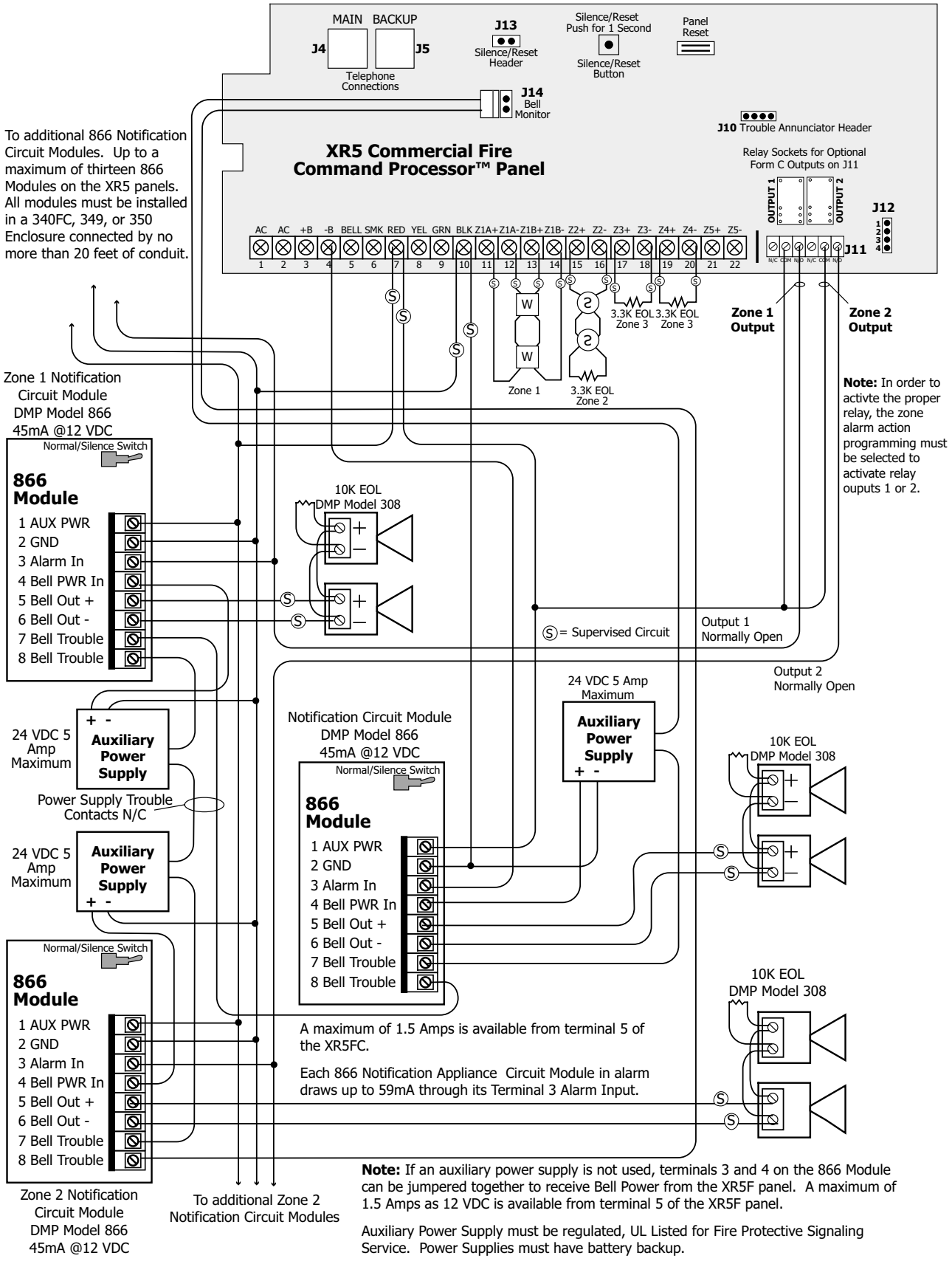
21.1 Multiple 866 Notification Circuit Modules


XR5 Commercial Fire
Command Processor™ Panel
MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
J14
Bell Monitor
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J10 Trouble Annunciator Header
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
Zone 1
3.3K EOL Zone 2
3.3K EOL Zone 3
3.3K EOL Zone 3
Ⓢ= Supervised Circuit
10K EOL DMP Model 308
UL Listed, Polarized Notification Appliances
Note: If an auxiliary power supply is not used, terminals 3 and 4 on the 866 Module can be jumpered together to receive Bell Power from the XR5F panel. A maximum of 1.5 Amps as 12 VDC is available from terminal 5 of the XR5F panel.
Auxiliary Power Supply must be regulated, UL Listed for Fire Protective Signaling Service. Power Supplies must have battery backup.
To additional 866 Notification Circuit Modules. Up to a maximum of thirteen 866 Modules on the XR5 panels. All modules must be installed in a 340FC, 349, or 350 Enclosure connected by no more than 20 feet of conduit.
Each 866 Notification Appliance Circuit Module in alarm draws up to 59mA through its Terminal 3 Alarm Input.
Notification Circuit Module DMP Model 866 45mA @12 VDC
Normal/Silence Switch
866 Module
1 AUX PWR
2 GND
3 Alarm In
4 Bell PWR In
5 Bell Out +
6 Bell Out -
7 Bell Trouble
8 Bell Trouble
+ - Auxiliary Power Supply
24 VDC 5 Amp Maximum
Power Supply Trouble Contacts N/C

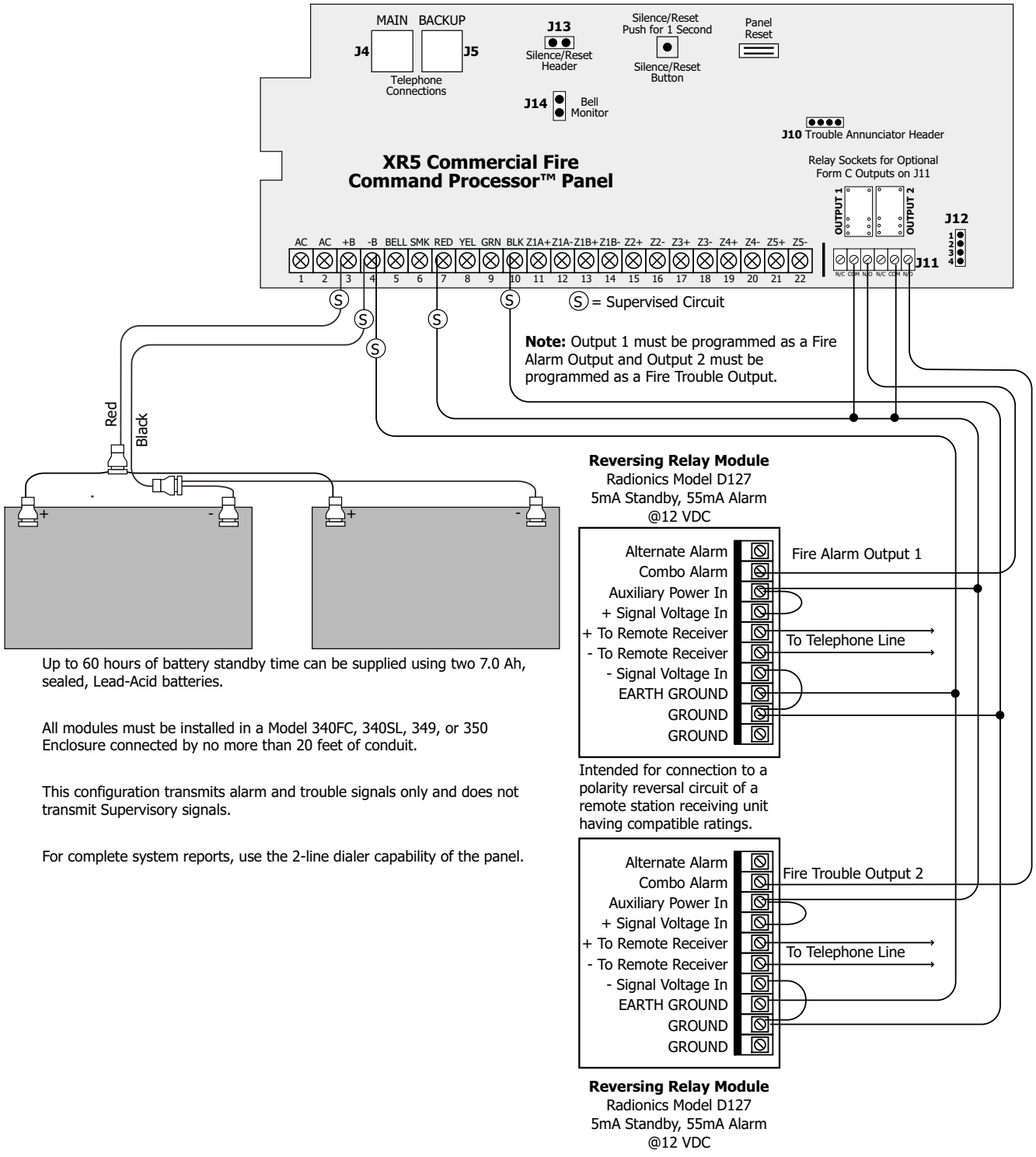
21.2 Multiple 865 Notification Circuit Modules


XR5 Commercial Fire
Command Processor™ Panel
MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
J14
Bell Monitor
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J10 Trouble Annunciator Header
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Zone 1
3.3K EOL Zone 2
3.3K EOL Zone 3
3.3K EOL Zone 3
Ⓢ = Supervised Circuit
To additional 865 Notification Circuit Modules. Up to a maximum of thirteen 865 Modules on the XR5 panels. All modules must be installed in a 340FC, 349, or 350 Enclosure connected by no more than 20 feet of conduit.
10K EOL
DMP Model 308
Style Y
UL Listed, Polarized Notification Appliances
UL Listed, Polarized Notification Appliances
Style Z
Each 865 Notification Appliance Circuit Module in alarm draws up to 59mA through its Terminal 3 Alarm Input.
Note: If an auxiliary power supply is not used, terminals 3 and 4 on the 865 Module can be jumpered together to receive Bell Power from the XR5F panel. A maximum of 1.5 Amps as 12 VDC is available from terminal 5 of the XR5F panel.
Auxiliary Power Supply must be regulated, UL Listed for Fire Protective Signaling Service. Power Supplies must have battery backup.
Power Supply Trouble Contacts N/C
+ - Auxiliary Power Supply
24 VDC 5 Amp Maximum
Notification Circuit Module DMP Model 865 25mA @12 VDC
Normal/Silence Switch
865 Module
1 AUX PWR
2 GND
3 Alarm In
4 Bell PWR In +
5 Bell PWR In -
6 Bell Out A +
7 Bell Out A -
8 Bell Out B +
9 Bell Out B -
10 Bell Trouble
11 Bell Trouble
+ - Auxiliary Power Supply
24 VDC 5 Amp Maximum
Power Supply Trouble Contacts N/C
Notification Circuit Module DMP Model 865 25mA @12 VDC
Normal/Silence Switch
865 Module
1 AUX PWR
2 GND
3 Alarm In
4 Bell PWR In +
5 Bell PWR In -
6 Bell Out A +
7 Bell Out A -
8 Bell Out B +
9 Bell Out B -
10 Bell Trouble
11 Bell Trouble

21.3 Multiple 866 Notification Circuit Modules for Zoned Annunciation


MAIN BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J14
Bell Monitor
J10 Trouble Annunciator Header
Relay Sockets for Optional Form C Outputs on J11
XR5 Commercial Fire Command Processor™ Panel
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
N/C COM N/O N/C COM N/O
To additional 866 Notification Circuit Modules. Up to a maximum of thirteen 866 Modules on the XR5 panels. All modules must be installed in a 340FC, 349, or 350 Enclosure connected by no more than 20 feet of conduit.
3.3K EOL Zone 3
3.3K EOL Zone 3
Zone 1 Output
Zone 2 Output
Zone 1
3.3K EOL Zone 2
Zone 1 Notification Circuit Module DMP Model 866 45mA @12 VDC
Normal/Silence Switch
866 Module
1 AUX PWR
2 GND
3 Alarm In
4 Bell PWR In
5 Bell Out +
6 Bell Out -
7 Bell Trouble
8 Bell Trouble
10K EOL DMP Model 308
Note: In order to activte the proper relay, the zone alarm action programming must be selected to activate relay ouputs 1 or 2.
= Supervised Circuit
Output 1 Normally Open
Output 2 Normally Open
24 VDC 5 Amp Maximum
Auxiliary Power Supply
+ -
Power Supply Trouble Contacts N/C
Notification Circuit Module DMP Model 866 45mA @12 VDC
A maximum of 1.5 Amps is available from terminal 5 of the XR5FC.
Each 866 Notification Appliance Circuit Module in alarm draws up to 59mA through its Terminal 3 Alarm Input.
Zone 2 Notification Circuit Module DMP Model 866 45mA @12 VDC
To additional Zone 2 Notification Circuit Modules
Note: If an auxiliary power supply is not used, terminals 3 and 4 on the 866 Module can be jumpered together to receive Bell Power from the XR5F panel. A maximum of 1.5 Amps as 12 VDC is available from terminal 5 of the XR5F panel.
Auxiliary Power Supply must be regulated, UL Listed for Fire Protective Signaling Service. Power Supplies must have battery backup.

21.4 Remote Station Reversing Relay Connection



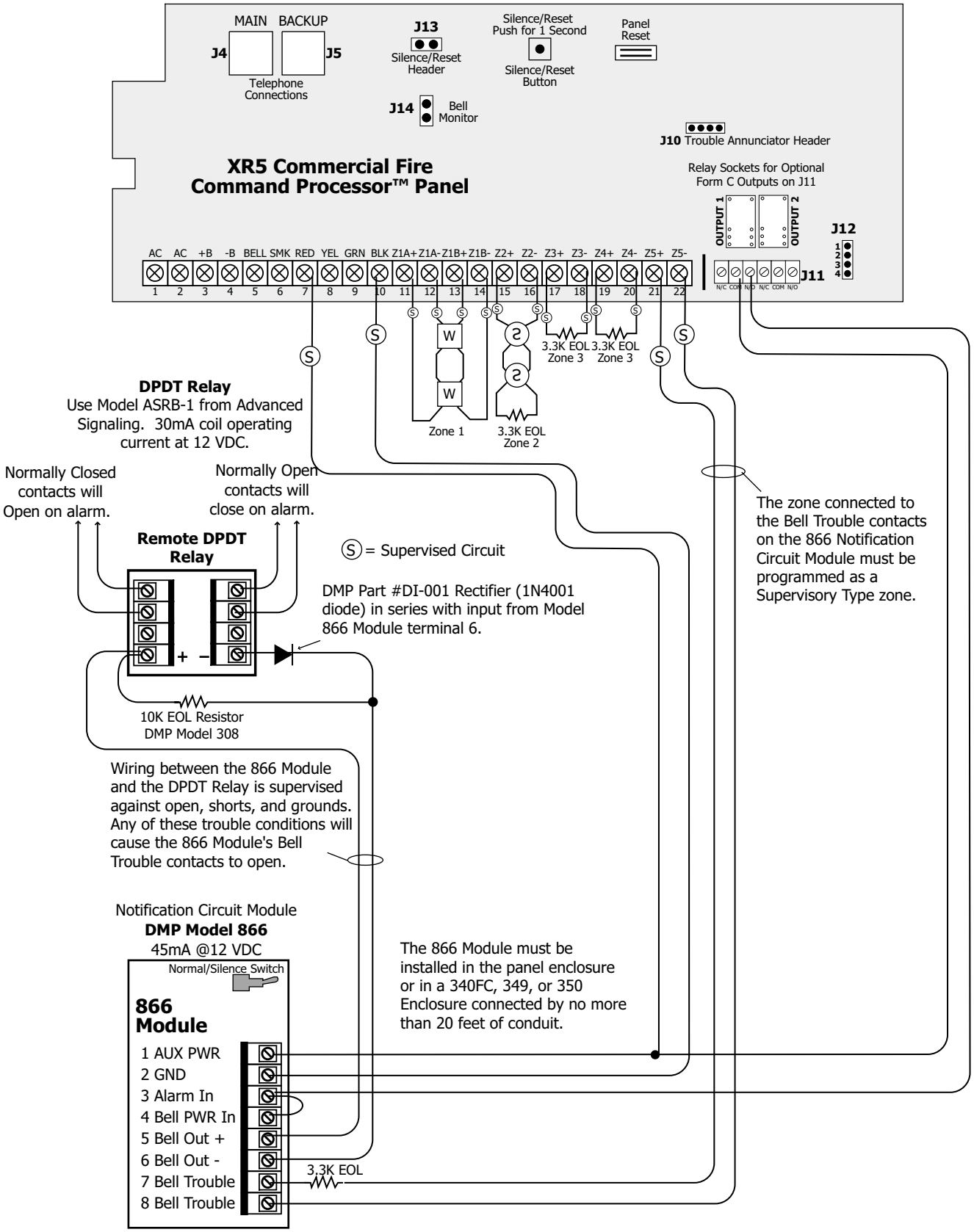
Up to 60 hours of battery standby time can be supplied using two 7.0 Ah, sealed, Lead-Acid batteries.

All modules must be installed in a Model 340FC, 340SL, 349, or 350 Enclosure connected by no more than 20 feet of conduit.

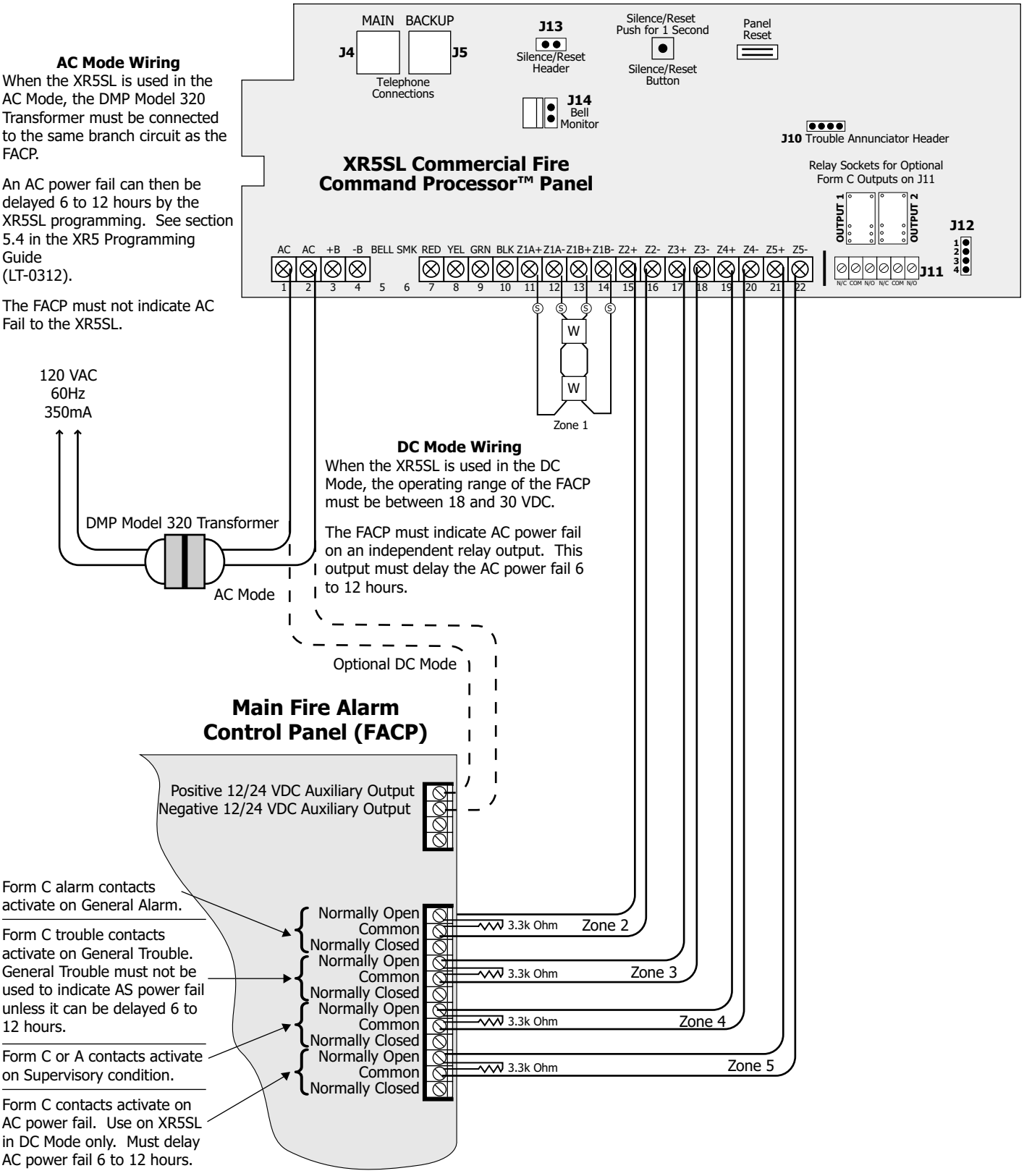
This configuration transmits alarm and trouble signals only and does not transmit Supervisory signals.

For complete system reports, use the 2-line dialer capability of the panel.

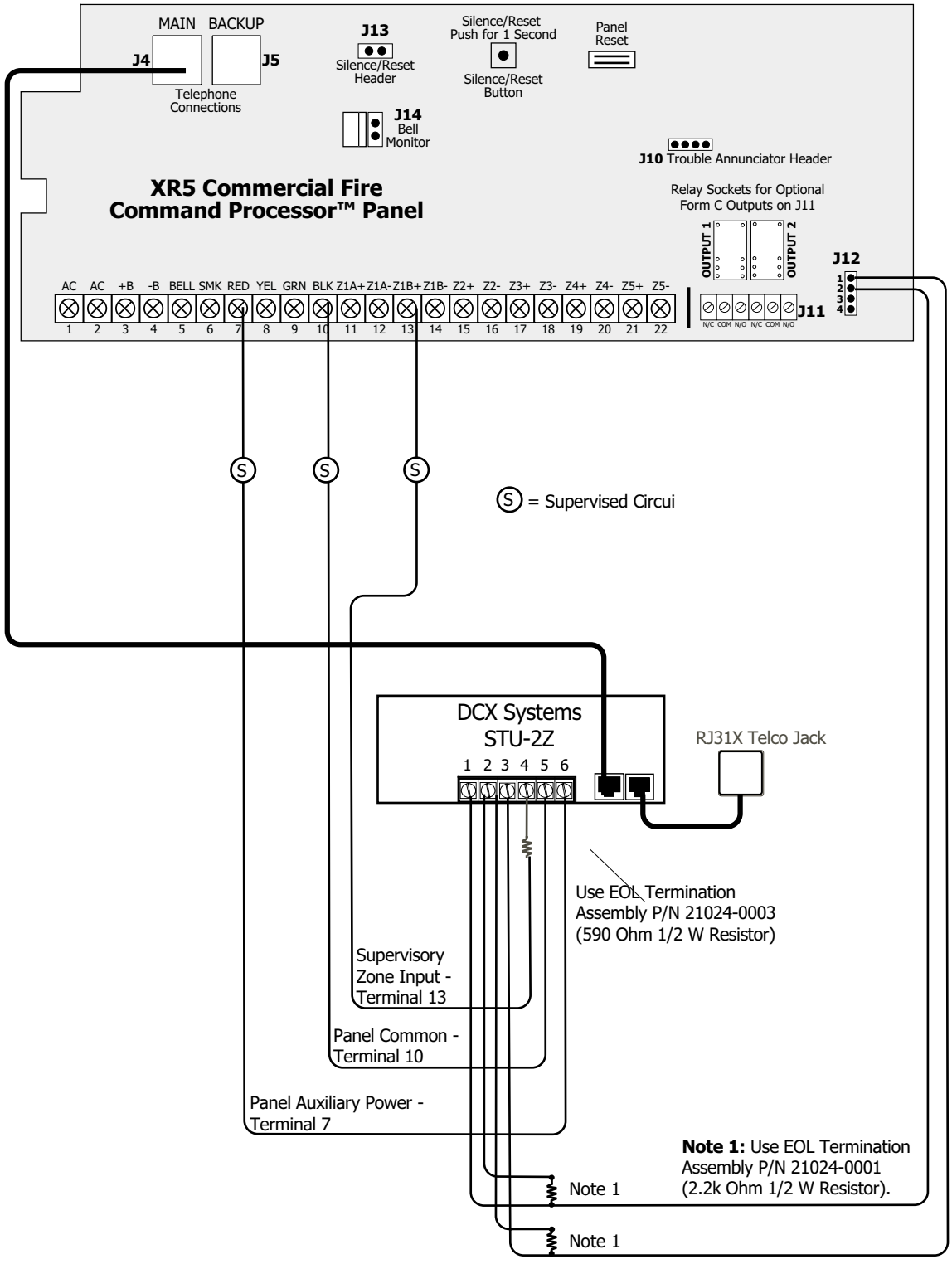
21.5 Supervised Remote Relay


MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J14
Bell Monitor
J10 Trouble Annunciator Header
XR5 Commercial Fire Command Processor™ Panel
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
N/C COM N/O N/C COM N/O
3.3K EOL Zone 3
3.3K EOL Zone 3
Zone 1
3.3K EOL Zone 2
DPDT Relay
Use Model ASRB-1 from Advanced Signaling. 30mA coil operating current at 12 VDC.
Normally Closed contacts will Open on alarm.
Normally Open contacts will close on alarm.
Remote DPDT Relay
Ⓢ = Supervised Circuit
DMP Part #DI-001 Rectifier (1N4001 diode) in series with input from Model 866 Module terminal 6.
10K EOL Resistor DMP Model 308
Wiring between the 866 Module and the DPDT Relay is supervised against open, shorts, and grounds. Any of these trouble conditions will cause the 866 Module's Bell Trouble contacts to open.
The zone connected to the Bell Trouble contacts on the 866 Notification Circuit Module must be programmed as a Supervisory Type zone.
Notification Circuit Module
DMP Model 866
45mA @12 VDC
Normal/Silence Switch
866 Module
1 AUX PWR
2 GND
3 Alarm In
4 Bell PWR In
5 Bell Out +
6 Bell Out -
7 Bell Trouble
8 Bell Trouble
3.3K EOL
The 866 Module must be installed in the panel enclosure or in a 340FC, 349, or 350 Enclosure connected by no more than 20 feet of conduit.

21.6 XR5SL Connection to FACP


AC Mode Wiring
When the XR5SL is used in the AC Mode, the DMP Model 320 Transformer must be connected to the same branch circuit as the FACP.
An AC power fail can then be delayed 6 to 12 hours by the XR5SL programming. See section 5.4 in the XR5 Programming Guide (LT-0312).
The FACP must not indicate AC Fail to the XR5SL.
MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J14
Bell Monitor
J10 Trouble Annunciator Header
XR5SL Commercial Fire Command Processor™ Panel
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
N/C COM N/O N/C COM N/O
W
W
Zone 1
120 VAC
60Hz
350mA
DMP Model 320 Transformer
AC Mode
DC Mode Wiring
When the XR5SL is used in the DC Mode, the operating range of the FACP must be between 18 and 30 VDC.
The FACP must indicate AC power fail on an independent relay output. This output must delay the AC power fail 6 to 12 hours.
Optional DC Mode
Main Fire Alarm Control Panel (FACP)
Positive 12/24 VDC Auxiliary Output
Negative 12/24 VDC Auxiliary Output
Form C alarm contacts activate on General Alarm.
Form C trouble contacts activate on General Trouble. General Trouble must not be used to indicate AS power fail unless it can be delayed 6 to 12 hours.
Form C or A contacts activate on Supervisory condition.
Form C contacts activate on AC power fail. Use on XR5SL in DC Mode only. Must delay AC power fail 6 to 12 hours.
Normally Open
Common
Normally Closed
3.3k Ohm
Zone 2
Zone 3
Zone 4
Zone 5

21.7 XR5FC/XR5SL Installation for Derived Channel


MAIN
BACKUP
J4
J5
Telephone Connections
J13
Silence/Reset Header
Silence/Reset Push for 1 Second
Silence/Reset Button
Panel Reset
J14
Bell Monitor
J10 Trouble Annunciator Header
XR5 Commercial Fire Command Processor™ Panel
Relay Sockets for Optional Form C Outputs on J11
OUTPUT 1
OUTPUT 2
J12
J11
AC AC +B -B BELL SMK RED YEL GRN BLK Z1A+ Z1A- Z1B+ Z1B- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
N/C COM N/O N/C COM N/O
S = Supervised Circui
DCX Systems
STU-2Z
1 2 3 4 5 6
RJ31X Telco Jack
Use EOL Termination Assembly P/N 21024-0003 (590 Ohm 1/2 W Resistor)
Supervisory Zone Input - Terminal 13
Panel Common - Terminal 10
Panel Auxiliary Power - Terminal 7
Note 1
Note 1
Note 1: Use EOL Termination Assembly P/N 21024-0001 (2.2k Ohm 1/2 W Resistor).

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